

DISTRIBUTIVE WEB PAGE MANAGEMENT SYSTEM

BACKGROUND OF THE INVENTION

Field of Invention

The present invention relates to a web page management system and the corresponding
5 method. More particularly, it relates to a distributive web page management system and
method that allows a user to log on and edit web pages from any location on the network,
rendering the user mobility and convenience.

Related Art

With the tremendous progress in computer hardware/software technologies and the
10 sophisticated and rapid development in network traffic, the modern society has become an
information society characterized in mass information communications. The
communications of global information become so often that information is continuously
generated and transmitted in different forms. Therefore, one can readily obtain a huge
amount of information by simply using a computer to link to websites all over the world. The
15 most important information providers and transmitting media in such an information network
are the websites distributed in the network. All data exchanging in the network and the
messages that network users can receive are stored in websites and for network users to
download or browse through web pages edited by the respective web masters.

Due to the continuous development in network communications, people have more
20 needs for information. Thus, the web page contents have to be renovating continuously so as
to attract network users and to update information provided. Modifying the web page
contents involves web page format editing and selections of information. The network
technicians have to master network related knowledge such as TCP/IP, Java, ActiveX and
HTML in order to have a more accurate and effective hold of the setup, update and
25 maintenance of a website. However, in addition to network-related information the website

contents also involves other types of knowledge, depending upon the theme and goal of the website. Therefore, aside from network professionals, information providers with other talents are often needed too in order to finish the edition of all the web page contents of a website.

5 After a website is established, the web page contents have to be continuously updated or revised for visitors to receive the latest information and for providing more innovative ideas. Thus, the information in web pages will be downloaded very often. For example, a normal visitor can simply download and read or is asked to enter data in a provided format in an interactive mode.

10 Under this hierarchical privilege structure, the identity verification and privilege distinction are necessary procedures. The distinction among the maintainers, editors, and normal visitors should be separately and rigorously controlled. The editing management system of the web pages in a website is thus a necessary tool. Most of the current conventional web page editing management tools cannot simultaneously provide the mobility and convenience for privilege distinction and editing management. Taking Microsoft
15 FrontPage as an example, when the central control system of Microsoft FrontPage is mounted on a network server, the web page editor has to set up a relevant transmission protocol or even drivers in an assigned client device in advance if he wants to the client device other than the server host to do the editing job. Under this circumstance, the web page editing can only
20 be performed on the server host and a few client devices being set up already. FIG.1 shows that a Microsoft FrontPage central control system is mounted on a network server 10 and only the assigned client device 20 is set up with the relevant transmission protocol. The editor can only log on from the assigned client device 20 and perform the web page editing and data transmission. When the editor travels far from the server host 10 and the assigned client
25 device 20 and goes to any one of the unassigned client devices 30, 40, 50, 60, then he is neither able to make use of the assigned client device 20 nor log on as a qualified web page editor from the unassigned client devices 30, 40, 50, 60 to transmit any data for web page editing. Therefore, the web page data updating and editing cannot be performed immediately,

and the editor has to wait until he finishes his trip and goes back to the assigned device 20. In a modern society, this limitation will greatly lower the convenience of the work and the speed or mobility of updating the web page information.

Furthermore, when the web page edited on the client device contains hyperlink settings
5 and all web pages have to be moved to a target website, the link relations among them and the corresponding paths may be different. So the edited web pages have to set up again. If the web pages have a rather complicated structure, it then takes more time and efforts for a technician to search and debug in order to have the correct link relations. Moreover, subsequent web page data maintenance will become more difficult. It is therefore highly
10 desirable to have a more convenient web page management tool so that the web page designer can complete the web page editing procedure with mobility and convenience and readily set up web page links when they are moved to the target website to alleviate subsequent maintenance work.

SUMMARY OF THE INVENTION

15 In view of the foregoing, the traditional web page management tools cannot satisfy the requirement for security and mobile convenience of web page management. Therefore, the present invention provides a distributive web page management system that manages web page editing data in a website so that a web page editor can complete the web page editing from any client computer device on the network.

20 The disclosed distributive web page management system contains a privilege database and an operation processing module mounted in a network. The privilege database includes user identity data, verification data and privilege data recording the editing privilege of a user on web pages of the website.

First, the user can log on after the distributive web page management system procedure
25 starts. Once the logon data are verified, the management system downloads the user assigned web page data according to the predetermined privilege settings in the privilege database and

sends them to the client computer device for the user to edit the web pages. When the editing is finished, the user uploads the edited web page data to the server host. The management system receives the edited web page data and substitutes them for the original data to update the contents of the new web pages.

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BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow illustration only, and thus are not limitative of the present invention, and wherein:

FIG. 1 is a schematic view of the operation management relation between the server end
10 and the client end of a conventional web page editing management system;

FIG. 2 is a schematic view of the operation management relation between the server end and the client end of a web page editing management system of the present invention;

FIG. 3 is an operation flowchart of performing web page editing using the disclosed distributive web page management system by a user;

15 FIG. 4 is a preferred embodiment flowchart describing how a web page editing management system user logs on according to the invention;

FIG. 5 is a flowchart of the processing action in the web page editing using the disclosed distributive web page editing system;

20 FIG. 6 is an operational flowchart of using the disclosed distributive web page management system to download web page data;

FIG. 7 is an operational flowchart of the web page content analysis and downloading in the user download list of the disclosed distributive web page management system;

FIG. 8 is an operational flowchart of the web page content analysis and uploading in the

user upload list when the disclosed distributive web page management system accepts web page data uploading;

FIG. 9 is an operational flowchart of the web page content analysis and uploading in the user upload list of the disclosed distributive web page management system;

5 FIG. 10 is a schematic view of a login window for the user to log on to the disclosed web page management system; and

FIG. 11 is a schematic view of an operation interface window provided by the disclosed web page management system for the user to download or upload.

DETAILED DESCRIPTION OF THE INVENTION

10 The present invention provides a distributive web page management system for managing web page editing data in a website so that a web page editor can finish web page editing tasks from any client computer device on the network without being limited in a restricted area. The invention also provides a transmission protocol for communications between the device and a host server.

15 As shown in FIG. 2, the disclosed distributive web page management system 200 is established in a network to manage web page editing data in a website 210. The distributive web page management system 200 contains a privilege database 202 and an operation processing module 204. The privilege database 202 contains user identity data, verification data and privilege data. The privilege data record the editing privilege of a user toward web
20 pages in the website 210, *i.e.*, the items in the web pages that the user can modify. The operation processing module 204 controls the operation of management procedures. Under the management of the distributive web page management system, a system user, which is the editor with web page data editing privilege, can use any of the client (user end) computer devices 221, 222, 223, 224, 225, 226 on the network to retrieve and edit web page data from
25 the website 210 allowed by his privilege through the network. For example, the editor can first create a new web page on the client computer 221 and save it to the website 210. Then

he can download the previously edited web page data from the client computer 223 and save it back to the website 210. The management operation mode of the disclosed distributive web page management system is described as follows.

Referring to FIG. 3, once the disclosed distributive web page management system procedure is started, the user can log on (step 301). If there is any error in input, the login data will be determined invalid and the management system returns to the status before login for the user to log on again. When the login data are successfully verified, the user can start to edit web pages. The distributive web page management system in the server host downloads the user assigned web page data and sends them to the user-end computer device according to the predetermined privilege settings in the privilege database (step 302). The user can then continue web page editing of the downloaded data (step 303). When the editing is finished, the user uploads the edited web page data to the server host (step 304). This then completes the web page editing procedure.

FIG. 4 shows a preferred embodiment flowchart of user login procedure in FIG. 3. The user first enters the username and the corresponding password at the user-end computer (step 401) and connects to the network (step 402) for transmitting the username and password to the web page management system at the server end. The web page management system then verify the inputs according to the previously prepared privilege data, performing the identity verification procedure (step 403). If the inputs have some errors, *e.g.*, incorrect username or password, then the management system will not allow the user to enter the system and return to the status before login. The user cannot obtain any web page editing power and has to go through the login procedure again. When the username and password are both correct, the user is then considered as a legal user with some web page editing privilege. The management system then obtains relevant data such as the user privilege according to his identity (step 404) and starts the data downloading procedure for the user to edit web pages. In the current preferred embodiment, the user-end device has the correct login format for the management system.

With reference to FIG. 5, when the distributive web page management system procedure is started, the system enters the user login status for the user to log on and for receiving the login data (step 501). After receiving the login data, the system verifies the entered according to the previously determined privilege data (step 502). If the login data are invalid, the system returns to the status of waiting for login for the user to log on again (step 501) or for other users to log on. If the entered login data are verified to be correct, then the user's identity is recognized and his editing privilege is loaded into the system. The system then transmits web page data to the user-end computer according to his request and his privilege for the user to edit (step 503). When the editing of downloaded web pages is finished, the user uploads the edited web page data to the server host and the management system stores these web page data (step 504). The system then replaces original data with the new data according to the user's privilege (step 505) so as to update the web page contents. This completes one web page editing procedure.

Referring to FIG. 6, when the web page editor logs on to the management system and requests for data downloading, the management system immediately performs a privilege analysis (step 601) to determine the user's editing privilege, *i.e.*, which portion of the web pages the user can modify, according to the privilege data previously determined and stored in the system.

When the user's privilege is determined, the system will read in a user editing record file (step 602) in order to know the web page contents that the user had previously edited. According to the data stored in the user editing record file, the management system can control all relevant web page data within the user's privilege, whereby to analyze the relation contents in the edited web pages (step 603). The relation contents include the web pages and elements related by the links and hyperlinks in the edited web pages and the locations and paths thereof. After all the related contents in the edited web pages are found, the system will display the web pages and related web pages within the user's privilege in a list for the user to select (step 604).

At the moment, the user can see in the user-end computer monitor a list of all web pages collected by the management system according to his privilege. Therefore, he can click the web pages he wants to edit in the list and send back the selection information. After the management system receives this web page selection message (step 605), it will form a list of the assigned web pages according to the user's request (step 606) and perform the web page content analysis and downloading according to the list (step 607).

With reference to FIG. 7, the management system first analyzes the web page contents requested to download in the selection list (step 701) so as to know whether each assigned web page contains image data (step 701-1), voice data (step 701-2), video data (step 701-3), animation data (step 701-4), text data (step 701-5), Java applets (step 701-6), or ActiveX elements (step 701-7). If the web page contains image data, then the image files are downloaded (step 702-1). If the web page contains voice data, then the voice files are downloaded (step 702-2). If the web page contains video data, then the video files are downloaded (step 702-3). If the web page contains animation data, then the animation files are downloaded (step 702-4). If the web page contains text data, then the text files are downloaded (step 702-5). If the web page contains Java applets, then the Java elements are downloaded (step 702-6). If the web page contains Active elements, then the ActiveX elements are downloaded (step 702-7). Finally, the HTML (hypertext markup language) is downloaded (step 703). Afterwards, the system will check if there is any other web page to be downloaded (step 704). If there is, the web page analysis task is continued (repeating step 701) followed by the download procedure. When the assigned web page analysis is completed, then the download procedure is finished.

With reference to FIG. 8, when the web page editor of the management system finishes his editing job and requests to upload the edited web page data to the server host where the management system is located, the management system will perform the privilege analysis again (step 801). The privilege analysis can be performed according to the previously determined privilege data stored in the system or can use the privilege analysis result obtained before the data downloading. The management system finds out all the modified related web

pages according to this privilege analysis result (step 802). All related web pages are then displayed in a list (step 803) for the user to select web pages to upload.

The user can see on his computer monitor the edited web pages listed by the management system. The user can then click the web pages he wants to upload and send the selection information back to the system. After receiving the web page selection information (step 804), the management system performs web page content analysis and uploading (step 806) according to the upload web page list collected by the system.

Referring to FIG. 9, the management system first analyzes all the web page contents in the assigned upload list (step 901). The system then checks whether each of the assigned web page contains modified image data (step 901-1), modified voice data (step 901-2), modified video data (step 901-3), modified animation data (step 901-4), modified text data (step 901-5), modified Java applets (step 901-6), or modified ActiveX elements (step 901-7). If the image data in the web page are modified, then the image files are uploaded (step 902-1). If the voice data in the web page are modified, then the voice files are uploaded (step 902-2). If the video data in the web page are modified, then the video files are uploaded (step 902-3). If the animation data in the web page are modified, then the animation files are uploaded (step 902-4). If the text data in the web page are modified, then the text files are uploaded (step 902-5). If the Java applets in the web page are modified, then the Java elements are uploaded (step 902-6). If the ActiveX elements in the web page are modified, then the Active elements are uploaded (step 902-7). Finally, the HTML file is uploaded (step 903). The system then checks if there is any other web page to be uploaded (step 904). If there is, then the web page analysis is continued (step 901) and the uploading procedure continues. After the assigned web page analysis and uploading procedure is completed, the user editing record file is modified accordingly (step 905) and the uploading procedure finishes.

With reference to FIG. 10, the user performs step 401 in the window displayed. A space 1001 with a pull-down menu provides a catalog of the server host for the user to log on. A space 1002 displays the name of the selected host. A space 1003 allows the user to enter the

network address of the server host for establishing network connection. A space 1004 is provided for the user to enter his username, which stands for the user's identity whereby the web page management can determine the user's privilege. A space 1005 is provided for the user to enter the corresponding password for verification. A space 1006 displays a project catalog. When the user wants to classify or file previously edited contents into different projects, he can select the project he wants to edit in this space. This then establishes the model of data classifications so as to avoid transmission data of big sizes and to minimize the analysis range when the management system performs web page analyses. When the user selects a specific project item, the system only needs to analyze and transmit the web pages referred in the assigned project, reducing the load in steps 503 through 505.

The right hand side of the window is listed with all function keys. The ADD key 1007 adds a new server host and its path into the catalog. The DELETE key removes an unnecessary item from the host catalog. The EDIT key can modify existing host names or paths. The SET AS DEFAULT key 1010 can change the default host machine so that the user connects to this default host without changing or inputting any information. When all login data are completed, the user can press the OK key 1011 to finish setting and start the network connection. After registering the data on the selected host, the user can then start to perform web page editing. If the user changes his mind at any stage of the login procedure, he can always use the CANCEL key 1012 to abandon the operations being processed.

With reference to FIG. 11, the display window 1101 lists the web page catalog within the user's privilege or projects. The user can select the web pages he wants to retrieve from the catalog. The space 1102 indicates whether the user wants to transmit all related web page contents. The SELECT ALL key can select all web pages in the catalog without clicking one by one. The CLEAR key 1104 can clear all selected web page items. The TRANSMIT key 1105 finishes the selection and transmits the selection information to the web page management system for data transmission. The CANCEL key 1106 can terminate the process of data transmission. The space 1107 shows the transmitted data percentage.

In summary, the disclosed distributive web page management system controls the edition and storage of web page data and has the following advantages:

- 5 1. Distributivity: The user can perform web page editing from any client computer device on the network without being limited by the driver and transmission protocol between the computer and the server.
2. Activity: The system provides a network content analysis function that can collect related data referred in the web pages (such as images, voices, video signals or other web pages) and download or upload together. The user does not need to search and select individually.
- 10 3. Consistency: When uploading data, the system will automatically detect all edited data to ensure the consistency of the data on the server.
4. Convenience: The user can complete data uploading or downloading with only one key.
- 15 5. Safety: Through the privilege control, each user can only edit and modify data within his privilege, ensuring the security of the data.

Furthermore, the distributive web page editing management system can be mounted according to practical needs on a server of a cable television, the Internet, a local area network (LAN), a wide area network (WAN) so as to build a network-based web page management system, achieving the goals of distributivity, activity, consistency, convenience and safety.

- 20 The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.